

IBX xCBL 3.5 Invoice specification



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**Company
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1. Introduction

Integrated trading partners can send/receive electronic invoices to/from the IBX Connect transaction platform.

The IBX Platform's standard format of electronic invoice documents is xCBL 3.5 – the standard SOAP envelope version is SOAP 1.2.

The IBX Connect platform has implemented the xCBL 3.5 standard as its canonical format and theoretically supports the full spectrum of the xCBL 3.5 invoice schema.

However the IBX Platform applications and business processes do not support all possible elements of the xCBL 3.5 format. Out of more than 8000 elements the IBX platform is using about 200 tags to describe the content of electronic invoices in XML format.

2. Purpose

The purpose of this document is to provide details about the recommended use of the Invoice document for xCBL 3.5. It is based on the [Invoice Recommended Use Summary](#) document published April 2002 on the www.xcbl.org website but disregards information that is not relevant for the invoice elements being used within the IBX platform.

The documentation of the IBX xCBL 3.5 invoice document would be incomplete without a structured spreadsheet listing the complete structure of an xCBL 3.5 invoice according to the official standard and highlighting those elements that are used within the IBX platform. Additionally it contains xPaths, field descriptions and their cardinality (whether they are mandatory or optional and how often they can occur in one invoice document).

Customer specific appendices describe the final recipient's demands for xCBL 3.5 invoices which can result in normally optional elements becoming mandatory due to trading partner business requirements.

3. Schema Validation

Any xCBL 3.5 invoice sent to IBX Connect must be valid according to the global xCBL 3.5 schema for invoices. Documents which do not comply with the standard xCBL 3.5 specification (see <http://www.xcbl.org>) will automatically be rejected by the IBX Connect platform.

The official xCBL 3.5 invoice schema can be downloaded from the xcbl.org website as

- SOX Schema version: <http://www.xcbl.org/xcbl35/sox/schemas.shtml>

- XSDL Schema version: <http://www.xcbl.org/xcbl35/xsd/schemas.shtml>
- XDR Schema version: <http://www.xcbl.org/xcbl35/xdr/schemas.shtml>
- XML DTD Version: <http://www.xcbl.org/xcbl35/dtd/schemas.shtml>

In case of inbound validation failures IBX Connect will respond synchronously with a HTTP 400 response code back to the sender's server.

4. Cardinality

A valid xCBL 3.5 invoice can be quite poor, containing only the absolutely necessary – or mandatory – elements which are:

- InvoiceHeader including
 - InvoiceNumber
 - InvoiceIssueDate
 - InvoicePurpose
 - InvoiceType
 - BuyerPartyID
 - SellerPartyID
- InvoiceDetail
 - BuyerLineItemNumber
 - ItemUnitPrice
 - ItemInvoiceCurrencyTotalValue

However – both IBX platform applications and implemented business processes as well as customers require more than this. Thus the requirements for an electronic invoice to be valid according to not only a standard schema but also in line with a set of business rules agreed between trading partners are stricter.

The structured spreadsheet contains therefore different columns stating

xCBL 3.5 cardinality:

Legend symbol	Meaning
0..1	Optional. Can appear 0 or 1 times
0..n	Optional. Can appear 0 to n times
1..1	Mandatory. Must appear once and only once
1..n	Mandatory. Can appear 1 to n times

IBX platform requirements:

Legend symbol	Meaning
M	Field is mandatory.
C	Field is conditionally mandatory (depends on content/presence of other field)
O	Field is optional.

5. Invoice

The Invoice document serves as an itemized bill from a supplier to a buyer. The level of detail required for implementation of this document will be dictated by the trading partner business requirements and depends on the complexity of the e-Invoice service being used.

An invoice can be invoked at various points during the business cycle (i.e., after purchase order create, after shipment processing, at goods receipt, etc.). This will influence the type of data that is referenced and required on the Invoice document.

The IBX Platform currently supports invoice documents specifying the billing requirements for a single order.

5.1 Specifying Invoice Types

The type of invoice used will determine the functionality of the invoice. Whether it is a debit invoice, credit invoice or prepayment invoice will dictate what type of data will be sent and which fields on the Invoice document are used. This information has to be specified in the InvoiceType element on header level: Invoice/InvoiceHeader/InvoiceType.

There are many different forms of an invoice and it is important to communicate between trading partners what type of invoice will be used. Invoices generated by applications on the IBX Platform can currently be of type debit invoice, credit invoice or prepayment invoice.

5.2 Specifying Invoice References

An invoice will usually be generated as a result of a previous transaction. Hence, it is very important for audit and reconciliation purposes to be able to link all previous transactions that resulted in the triggering of the Invoice document.

5.2.1 Header Level References

At the header level, the reference information is specified in the InvoiceReferences structure (Invoice/InvoiceHeader/InvoiceReferences) which has explicit containers to store purchase order reference, ASN reference, contract reference, etc

Mandatory for certain business processes as IBX Invoice Matching, IBX Invoice Enrichment and IBX Procurement Intelligence are PurchaseOrderNumber and PurchaseOrderDate, in particular countries also the DeliveryNoteNumber as invoice references that apply to the whole invoice..

5.2.2 Line Level References

A line item contains an optional InvoiceReferences structure so that a link to previous transactions can be specified at this level. The structure is found in Invoice/InvoiceDetail/ListOfInvoiceItemDetail/InvoiceItemDetail/InvoiceBaseItemDetail/LineItemReferences/InvoiceReferences. In xCBL it is common to use this line level reference for consolidated invoices where each invoice line item can be originated from different documents (currently not supported by IBX Platform). But this structure can also be used to reference existing contracts or catalogs from which this item originated. Certain buying customers on the IBX Platform require the related PurchaseOrderNumber referenced per line item in addition to the reference on header level..

Providing this information will facilitate the reconciliation and line item matching process of the invoice to the originating purchasing document.

5.3 Specifying Currency Information

5.3.1 Invoice Currency vs. Payment Currency

In most cases, the currency specified on the purchase order should be the same as the currency specified on the invoice and payment document. There are some business processes where this is not the case. To assist in the audit and reconciliation process for these types of invoices, users can explicitly specify the invoice currency and payment currency within the Invoice document.

This is done respectively in //InvoiceHeader/InvoiceCurrency/Currency and //InvoiceHeader/PaymentCurrency/Currency.

5.3.2 Tax Accounting Currency

For cross-border trade, a trading partner may invoice in a currency that differs from the currency that they pay tax in. For these cases, the tax accounting currency can be specified in Invoice/InvoiceHeader/TaxAccountingCurrency/Currency. Usage of this structure is optional and will be determined based on trading partner business requirements.

As with all xCBL documents, the currency data specified at the header level serves as a default value for the entire document unless it is explicitly overridden at the line level.

5.4 Specifying Details of an Item

The following specifies how the recommended xCBL line numbering and part number identification is to be handled. Within the Invoice, this can be found in `//InvoiceDetail/ListOfInvoiceItemDetail/InvoiceItemDetail/InvoiceBaseItemDetail/`. Please note that many of the xCBL documents (as Order, OrderResponse...) use the `BaseItemDetail` element and hence there will be many similarities in how this structure is used.

5.4.1 Line Item Identification

A line item is uniquely identified within the Invoice document with the `//InvoiceBaseItemDetail/LineItemNum` element. The `BuyerLineItemNum` is mandatory and must match the `BuyerLineItemNum` value that was assigned in the preceding Order document.

Please note that there is also an optional `SellerLineItemNum` field which may be used if the primary line item identifier differs from the seller's line item identifier.

5.4.2 Part Numbers

The `//InvoiceBaseItemDetail/ItemIdentifiers` element is used to provide the identification of the item being invoiced. Typically, the `//ItemIdentifiers/PartNumbers/SellerPartNumber` should be sufficient to identify the item being invoiced, although other identifiers of the item can also be specified.

5.5 Specifying Quantities

5.5.1 Total Quantity

The total quantity of the item being invoiced is specified in the `//InvoiceBaseItemDetail/TotalQuantity/Quantity` element. In general, the total quantity multiplied by the unit price should equal the `InvoiceCurrencyTotalValue/MonetaryAmount`. This is may not always be the case if the invoicing currency is different from the order currency. It is recommended that the units of measure for the `TotalQuantity` and the units of measure for the `UnitPrice` be the same.

5.6 Specifying Invoice Dates

Invoice documents are time sensitive hence it is often necessary to specify various date values to establish important time references:

5.6.1 Invoice Issue Date

The create date of an Invoice document is used in many business processes as a starting counter for various payment terms and for applying discounts. This field is mandatory and is specified in the Invoice/InvoiceHeader/InvoiceIssueDate field.

5.6.2 Header Level Invoice Dates

At the header level of the Invoice document, there is an element found in //InvoiceHeader/InvoiceDates that can be used to specify important dates. The most common element used here would be InvoiceDueDate, which will specify the date that payment is due. Additionally there is also a ListOfOtherInvoiceDate structure which can be used to specify other important dates.

5.7 Specifying Pricing

Pricing information within the xCBL 3.5 Invoice can range from very simple, to more complex pricing schemes. In general, the xCBL recommended pricing detail usage does not vary between the Invoice and Order document. The pricing detail for the Invoice document can be found in //InvoiceDetail/ListOfInvoiceItemDetail/InvoiceItemDetail/

InvoicePricingDetail/PricingDetail.

5.7.1 Simple Pricing

To specify a basic price for an item, only one //PricingDetail/ListOfPrice/Price element should be used. Within this element, the price is specified in the //Price/UnitPrice/UnitPriceValue element. The units of measure that the price applies to are specified by the //UnitPrice/UnitOfMeasurement element. An example of this would be to say that the unit price for an item is \$3 per item where:

```
//UnitPrice/UnitPrice/Value = 3
//UnitPrice/UnitOfMeasurement/UOMCoded = "EA"
```

Note that the currency of the unit price is optional, but should be specified if it differs from the default currency set at the header level of the document. Please refer to the *UnitPrice Currency* section above.

5.7.2 Price Basis Quantity

In some cases, the pricing may be expressed in terms other than per 1 unit of measure. For instance, one might want to say that the unit price for paint is \$5 per 2 gallons. In this case, the monetary amount of the price is still specified using the //Price/UnitPrice/UnitPriceValue element, but now, the number of units and the units of measure are expressed using the //Price/PriceBasisQuantity/Quantity element. In this case:

```
//PriceBasisQuantity/Quantity/QuantityValue = 2
//PriceBasisQuantity/Quantity/UnitOfMeasurement/UOMCoded = "A76" (gallon)
```

5.7.3 Recommended Best Practices

Only one unit of measure should be specified for a given price. That is to say, that when a price basis quantity is specified, the units of measure in the UnitPrice element should not be used. When specifying units of measure for a unit price, or for a price basis quantity, it is strongly recommended that this be done in the same units of measure that the item is being ordered in.

5.8 Specifying Tax Information

5.8.1 Taxes, Allowances and Charges

Taxes that apply to the pricing of an item are specified in the //PricingDetail/Tax element. At the header level, the overall allowance and charge information for the invoice is specified in //InvoiceHeader/InvoiceAllowancesOrCharges. Allowances or charges for the item should be expressed in the //PricingDetail/ItemAllowancesOrCharges/ListOfAllowOrCharge element.

5.8.2 Tax IDs

Explicit tax identification information can be specified for the Buyer and Seller parties. This is found in the Invoice/InvoiceHeader/InvoiceParty structure respectively in the BuyerTaxInformation and SellerTaxInformation structures. If it is necessary to specify tax identification information for any additional parties not listed above, then it is recommended to map this information in the Party element using the //ListOfIdentifier/Identifier/Ident field where the //ListOfIdentifier/Identifier/Agency field is used to specify the organization that assigns the tax identification numbers. For example, there is not an explicit BillToTaxInformation structure within InvoiceParties. Hence, the tax ID of the BillTo should be mapped into //InvoiceParty/BillToParty/Party/ListOfIdentifier/Identifier/Ident.

5.9 Specifying Payment Instructions

Payment instructions are a crucial part of invoicing. This information is not always required in the Invoice document since it is oftentimes stated elsewhere. In many cases, the payment instructions related information is outlined in a partner agreement or contract before trading partners begin to transact. This information may also be explicitly outlined in the original Order document and may not need to be reiterated on the Invoice. In other cases, the trading partners have this type of information stored at the master data level where terms and discounts are associated with particular customers

5.9.1 Payment Terms

The payment terms are specified using `//InvoiceHeader/InvoicePaymentInstructions/PaymentTerms`. A trading partner may have multiple payment terms hence this structure may be repeated as needed. All payment terms are specified at the header level of the Invoice and hence will apply to the entire document.

5.9.2 Discounts

There are two methods for specifying discount detail within the Invoice document. To avoid confusion, it is recommended that the `//InvoiceHeader/InvoicePaymentInstructions/PaymentTerms/PaymentTerm/PaymentTermDetails/Discounts` structure is used to specify all discount information at the header level. In general, it is recommended to avoid using the `//InvoicePaymentInstructions/PaymentTerms/Discounts` structure. Nevertheless invoices created in IBX Supplier Order Management and including discounts will have the discount information in both structures.

5.9.3 Payment Method

The method of payment for the Invoice can be specified by using the `//InvoiceHeader/InvoicePaymentInstructions/PaymentMethod` structure. The means by which the funds should be transferred is specified in the `//PaymentMethod/PaymentMeanCoded` field. If a bank transfer is to take place, then the banking and account details for the “transfer to” account can be specified in `//PaymentMethod/ReceivingFIAccount/FIAccount`.

5.10 Specifying Totals

In general, all invoice total values can be specified in the `InvoiceTotals` structure found in the `Invoice/InvoiceSummary` section. `InvoiceTotals` represents the total values of the invoice and should be summations of all the line item totals. Please note that all total values are specified in terms of `MonetaryValue`.

5.10.1 Handling Gross & Net Values

The most common elements used are the `NetValue` and `GrossValue` fields. The `GrossValue` represents the summation of all the line items before taxes are applied. The `NetValue` holds the total amount to be paid on the Invoice by the stated `InvoiceDueDate`. If the invoice includes taxes that have to be paid then the total net value in the invoice summary contains taxes.

Please note that this handling of net and gross values in the invoice summary is not following the recommendation of the original xCBL 3.5 specifications!

5.10.2 Handling Discount Totals

The total discount amount that could apply to this Invoice is specified in the `TotalDiscount` element found in `//InvoiceSummary/InvoiceTotals`. The total amount due (`NetValue`) on an invoice less the discount amount can be specified in the `TotalAmountMinusDiscount` element.

5.10.3 Handling Tax Totals

The TaxValue is the total value of the invoice that is taxable. This may not necessarily be the same as the NetValue since some invoiced items may not be taxable. This is stated in terms of the invoice currency and is specified in //InvoiceSummary/InvoiceTotals/

TaxValue. The TaxValueInTaxAccountingCurrency is the total taxable amount stated in terms of the TaxAccountingCurrency. This is specified in //InvoiceSummary/

InvoiceTotals/TaxValueInTaxAccountingCurrency. The total of all tax levied on the Invoice including all rates and tax regimes, is specified in //InvoiceSummary/InvoiceTotals/TotalTaxAmount.

5.10.4 Line Item Totals

The total amount for a given line item is specified in //InvoiceDetail/ListOfInvoiceItemDetail/InvoiceItemDetail/InvoicePricingDetail/InvoiceCurrencyTotalValue/MonetaryValue/MonetaryAmount. It is recommended that the value be equal to the TotalQuantity multiplied by the UnitPrice of the item along with any taxes, allowances, or charges calculated appropriately into the amount. Please note that this should all be specified in the invoicing currency. If there is a requirement to specify additional line item totals, then it is suggested that the //InvoicePricingDetail/PricingDetail/TotalValue structure be used. This could possibly contain the line item "gross value" which is the value of the TotalQuantity multiplied by the UnitPrice. It could also contain the total amount for a given line item in terms of the originating order currency, in the case where the invoicing currency differs from the originating order currency. In general, usage of the line item total values will depend on the business requirements of the trading partners involved. It is important that these details be communicated and agreed upon between trading partners.